

Dinosaurs discovered in unlikely places

Sun staff

A stroke of bad luck led paleontologists on the Antarctic Peninsula to one of the biggest finds of the season.

They planned to land on Vega Island, where previously found dinosaur bones waited in the permafrost, but heavy sea ice blocked their way in November. After a week of failed attempts, the *Laurence M. Gould* dropped the scientists on James Ross Island instead.

Team leaders James Martin from the South Dakota School of Mines and Technology and Judd Case from Saint Mary's College of California felt there was no chance of finding anything but marine reptile bones there, since the island had been underwater and about 64 km off-shore when Antarctica was inhabited. They went through the motions of looking for bones anyway, walking out onto a steep-sided, basalt-capped ridge at the end of a headlands. Case was ahead of the rest of the group when he noticed small, rounded stones of the kind ancient marine reptiles swallowed for ballast or gizzard stones, as chickens do. Looking a bit farther he found angular joint bones, a sign the bone had belonged to something more interesting than a marine reptile.

"Hey, I've got something you might find interesting," Case told Martin over the walkie talkie.

While the professors conferred, their graduate student jumped up and down and announced what they would soon corroborate "It's a dinosaur!"

The team spread out like kids at an Easter egg hunt, and everyone found something for the basket.

"Literally over a span of about 20 minutes everybody is beginning to find pieces of what we presume is the same animal," Case said.

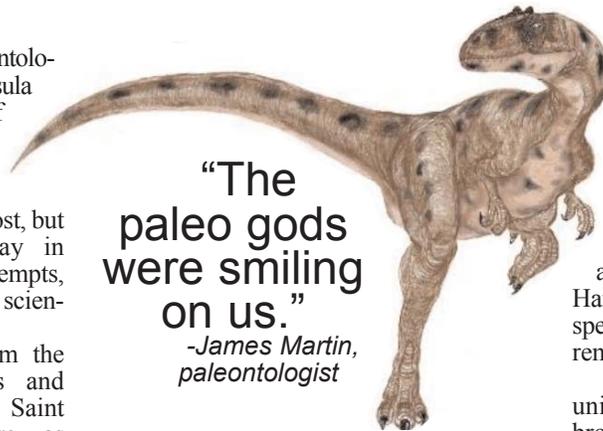
The next day they sieved the dirt in a 50-meter by 30-meter area.

"We picked it up and screened the whole area, took every piece of bone we could find," Martin said.

Back at the camp they began to puzzle together bits of bone, gluing them with super glue. In all, they found about 30 percent of the dinosaur - a couple leg bones, hind limbs, parts of teeth, pieces of the skull, fragments of foot and ankle, and a little bit of toe.

"For a dinosaur in the middle of the ocean, that's pretty good," Martin said.

The toes, claws and teeth showed it was a meat eater. It most likely lived 70 million to 75 million years ago, at the end of the Cretaceous period. At that time the climate



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Graphic by M. Shiraishi/
Courtesy of Judd Case

on the coast of Antarctica was temperate, cool and forested, similar to the Pacific Northwest.

They believe the creature belonged to a population of dinosaurs that survived in Antarctica long after their kind died out elsewhere. The still unnamed dinosaur stood upright on its hind legs, but was small for the time, being about 2.5 meters tall. It likely hunted in packs.

"It's a real thin, fast dinosaur," Martin said. "It looks a little like velociraptor in Jurassic Park, but I don't think it could open doors and things like that."

This is the fifth dinosaur found in the James Ross Island region. Martin and Case are still surprised it ended up on the floor of the Weddell Sea.

"This guy must have floated and bloated," Martin said.

"The fact that we ended up with only the head and feet are not atypical of when they get floated and munched on by sharks and other animals," Case said. "There's not a lot of meat on the head and feet."

They had plenty of time to consider the possible scenarios as wind and rain buffeted their tents, and delayed the *Gould* from picking them up for three days.

"Overall, it was quite an experience, but the paleo gods were smiling on us," Martin said.

Meanwhile, in the mountains...

At almost the same time Case and Martin found their carnivore on the coast, another team of paleontologists discovered a new herbivore in the hills. Paleontologist Bill Hammer identified the fossilized pelvis of a primitive sauropod on Mt. Kirkpatrick near Beardmore Glacier in the Transantarctic Mountains. The pelvis measures about a meter across. Hammer estimated the early sauropod was between 1.8 and 2.1 meters tall and up to 9 meters long. It would have been similar to the four-legged, tree-brows-

ing brachiosaurus. Based on the age of the rock it was embedded in, the sauropod lived about 200 million years ago.

Hammer's new find was about 100 feet above where he'd dug out the first carnivorous dinosaur to be found in the Antarctic 13 years ago. In April the 680 kg. of rock and bone his team dug arrived at Augustana College, where Hammer teaches. Graduate students will spend the rest of the summer carefully removing the new sauropod from the rock.

A similar process is going on at the home universities of all the researchers who brought home fossils samples from the Beardmore paleo-camp this season.

"We plan on spending much of the summer working on the rock and synthesizing the data we collected in the field," wrote John Isbell, from the University of Wisconsin - Milwaukee, who had been chief scientist for the Beardmore Camp.

Paleobotanists Tom and Edith Taylor from the University of Kansas had the largest haul of rock and fossils, about 4,000 kg. As soon as the fossils were unloaded in April, they started slicing them into 2 cm slabs with a diamond-coated blade. The surface is then etched with hydrofluoric acid. Already Tom Taylor said they've found treasures hidden inside the rock. He's most excited by a seed cone of a cycad plant. In previous Antarctic trips the Taylors found and described a cycad pollen cone and stem, but this is the first seed cone they've found. Better yet, an insect had bored into the cone, indicating that insects probably were involved in pollinating the cone, just as they do in modern cycads today. In fact, the beetles pollinating today's cycads may have evolved in tandem with the plant.

"These are things that have not been seen before in the Permian and Triassic, and in fact provide new opportunities to study not only the plants, but the intimate relationships between plants and animals," said Taylor. "We're real pleased with what we found this year."

Based on some of their findings, the Taylors, their students and postdoctoral associates are preparing presentations for August meetings of the Botanical Society of America and the American Phytopathological Society, as well as papers for several science journals. Meanwhile six students will spend their summer slicing up the remaining rock, probably making more discoveries along the way.

NSF funded research featured in this story: Judd Case, Saint Mary's College of California, Bill Hammer, Augustana College, Edith Taylor, University of Kansas,